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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,900	11/03/2003	Carl Michael Hesler	A01448	4372

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ROHM AND HAAS COMPANY
PATENT DEPARTMENT
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EXAMINER

SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 12/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/699,900

Applicant(s)

HESLER ET AL.

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3,5,6,8,10 and 12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3,5,6,8,10 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>12/4/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/9/06 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 3, 6, 8, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Zhu (U.S. 5,889,083) taken in view of the evidence given in Yatake (U.S. 5,560,770)

Zhu disclose method for providing image on hydrophobic surface comprising forming aqueous ink jet ink comprising aqueous emulsion polymer possessing glass transition temperature of 65-85 °C, pigment, 0.1-10%, preferably, 1-5% water-soluble surface agent, i.e. monoalkyl ether of alkylene glycol, sulfolane, or N-methyl pyrrolidone, and acetylenic defoamer known under the tradename Surfynol, jetting the ink onto the hydrophobic surface, i.e. plastic, polyethylene, polypropylene, etc., and drying the ink (col.1, lines 4-8, col.1, line 66-col.2, line 1,

col.3, lines 15-28, col.5, lines 8-13 and 40-56, col.8, lines 50-65, col.10, lines 31-44, col.11, lines 53-54, and col.13, lines 10-12). It is well known, as evidenced by Yatake (col.4, lines 30 and 40-44), that Surfynol is a nonionic surfactant.

In light of the above, it is clear that Zhu anticipate the present claims.

4. Claims 3, 6, 8, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Patel et al. (U.S. 5,977,210) taken in view of the evidence given in Sasaki et al. (U.S. 4,248,636) and Satake et al. (U.S. 5,814,685).

Patel et al. disclose method for providing image on plastic surface comprising forming aqueous ink jet ink comprising aqueous emulsion polymer, pigment, and water-soluble surfactant, i.e. anionic and cationic surfactant, as well as non-ionic surfactant, jetting the ink onto the plastic surface, and then allowing the ink to dry. It is further disclosed that the ink comprises 85-99.5% liquid vehicle comprising water and solvent in ratio of 97:3 to 50:50 wherein the solvent includes sulfolane. It is well known, as evidenced by Sasaki et al. (col.1, lines 54-55), that plastic surface are hydrophobic (col.1, lines 5-7, col.3, lines 42-50, col.4, lines 14-23 and 51-53, col.5, lines 22-25, col.6, lines 11-41, 58-60, and 65, col.7, lines 1-6, 14-16, 21-25, 36-43 and 55, and col.11, lines 32-36). Although there is no explicit disclosure of the glass transition temperature, it calculated, using the preferred polymer of Patel et al., i.e. obtained from 82% styrene, 18% butyl acrylate, and 2% acrylic acid, and the well known glass transition temperatures of styrene, i.e. 100 °C, butyl acrylate, i.e. -53 °C, and acrylic acid, i.e. 106 °C as evidenced by Satake et al. (col.4, lines 39 and 49 and col.5, line 50), that the polymer possesses glass transition temperature of, for instance, approximately 53 °C.

In light of the above, it is clear that Patel et al. anticipate the present claims.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu (U.S. 5,889,083) or Patel et al. (U.S. 5,977,210) either of which in view of Miyabayashi et al. (U.S. 2002/0107303).

The disclosures with respect to Zhu and Patel et al. in paragraphs 3 and 4 above are incorporated here by reference.

The difference between Zhu or Patel et al. and the present claimed invention is the requirement in the claims of specific type of substrate.

Miyabayashi et al., which is drawn to ink jet ink, disclose using the ink on plastic substrate such as polyvinyl chloride (paragraph 109). It would have been within the skill level of one of ordinary skill in the art to choose type of substrate utilized depending on the end use of the ink.

In light of the disclosure of Miyabayashi et al., it therefore would have been obvious to one of ordinary skill in the art to use ink of Zhu or Patel et al. on plastic substrate, including polyvinyl chloride substrate as presently claimed, in order to produce ink for desired end use, and thereby arrive at the claimed invention.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu (U.S. 5,889,083) or Patel et al. (U.S. 5,977,210) either of which in view of Ma et al. (U.S. 5,085,698).

The disclosures with respect to Zhu and Patel et al. in paragraphs 3 and 4 above are incorporated here by reference.

The difference between Zhu or Patel et al. and the present claimed invention is the requirement in the claims of the surface tension of the ink.

Zhu and Patel et al. are each silent with respect to surface tension.

Ma et al., which is drawn to ink jet inks, disclose that the ink jet velocity, separation length of the droplets, drop size, and stream stability of the ink when printing are greatly affected by the surface tension and that inks suitable for use with ink jet ink printer having surface tension of about 20-70 dyne/cm (col.10, lines 21-26).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to control the surface tension of the ink of Zhu or Patel et al. to values, including those presently claimed, in order to produce ink that is suitable for, and properly printed from, ink jet printer, and thereby arrive at the claimed invention.

Response to Arguments

9. Applicants' arguments regarding Cheng et al. (U.S. 6,239,193) have been considered but they are moot in view of the discontinuation of the use of this reference against the present claims.

10. Applicants' arguments filed 10/9/06 have been fully considered but, with the exception of arguments relating to Cheng et al., they are not persuasive.

Specifically, applicants argue that Patel et al. is not a relevant reference against the present claims given that the ink of Patel et al. always requires the use of cationic surfactant which is outside the scope of the present claims that require "surfactant selected from the group consisting of anionic surfactant, nonionic surfactant, and mixtures thereof". Although the present claims recite open language with respect to the ink, i.e. "comprising", applicants argue that in

light of the use of Markush language with respect to the surfactant, the use of cationic surfactant is outside the scope of the present claims. As evidence to support their position, applicants point cite *Abbott Laboratories v. Baxter Pharmaceutical Products, Inc.*, 334 F.3d 1274 (Fed. Cir. 2003).

However, it is the examiner's position that the present situation is different than the situation of *Abbott*. In *Abbott*, the claims recited "a Lewis acid inhibitor....said Lewis acid inhibitor selected from the group consisting of....propofol and thymol". *Abbott* argued that the recitation of "a" Lewis acid is understood to mean that "more than one inhibitor would still fall within the claim boundaries". However, the court held that in light of the use of Markush language to recite the specific Lewis acid inhibitors, "a" indicates only one member of the Markush group and that without expressly indicating the selection of multiple members of a Markush group, a patentee does not claim anything other than the plain reading of the closed claim language.

However, there is no disclosure in *Abbott* regarding the use of open language with respect to the scope of the claim in addition to the use of Markush language. *Abbott* only discusses what is specifically included in a recited Markush group. That is, if claims recite compound selected from the group consisting of A and B, claims include A or B but not mixtures. Thus, in the present claims, it is noted that based on the Markush language, there must be present a nonionic surfactant, an anionic surfactant, or a mixture of anionic surfactant and nonionic surfactant. However, it is the examiner's position that this does not exclude the presence of other surfactant, i.e. cationic surfactants; it only requires the presence of those recited surfactants.

In light of the open language of the present claims, i.e. comprising", it is clear that the scope of the ink remains open to the inclusion of additional ingredients including cationic surfactant. That is, the transitional language "comprising" allows the claims to include other surfactants as long as the surfactants also contain one selected from the group consisting of anionic surfactant, nonionic surfactant, and mixtures thereof.

Applicants also argue that Patel et al. fails to teach what water-soluble surface agents are needed to adhere to hydrophobic surface and what glass transition temperature levels are selected for the aqueous emulsion polymer.

However, with respect to the water-soluble surface agent, it is noted that Patel et al. disclose that the ink comprises 85-99.5% liquid vehicle comprising water and solvent in ratio of 97:3 to 50:50 wherein the solvent includes sulfolane (col.6, lines 58-60 and 65 and col.7, lines 1-6, 14-16, and 21-25).

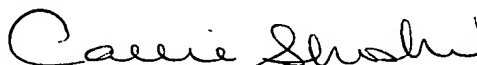
With respect to the glass transition temperature, although there is no explicit disclosure of the glass transition temperature, it is calculated, using the preferred polymer of Patel et al., i.e. obtained from 82% styrene, 18% butyl acrylate, and 2% acrylic acid, and the well known glass transition temperatures of styrene, i.e. 100 °C, butyl acrylate, i.e. -53 °C, and acrylic acid, i.e. 106 °C, that the polymer possesses glass transition temperature of, for instance, approximately 53 °C. Given that the preferred polymer of Patel et al. possesses glass transition temperature that falls within the presently claimed range, it is the examiner's position that Patel et al. meets the requirements of the present claims with respect to glass transition temperature.

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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
12/10/06